

REMARKS

Dealing with preliminary matters first, Applicants thank the Examiner for acknowledging Applicants' claim to priority and receipt of the priority document. Further, it is noted with appreciation that the Examiner has considered the Information Disclosure Statement filed concurrently with the application.

Claims 27-50 are all the claims pending in the application. Based on the following comments, it is submitted that the application is in condition for allowance.

Claim Rejections Under 35 U.S.C. § 112:

Claims 27 and 29 are rejected under 35 U.S.C. § 112 (second paragraph) as being indefinite for failing to particularly point out and distinctly claim the invention. Claims 27 and 29 have been amended per the Examiner's suggestion. Thus, this rejection has been overcome.

Claim Rejections Under 35 U.S.C. § 103:

Claims 27-50 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Romani, et al. (U.S. Patent No. 6,506,863) or Braga, et al. (U.S. Patent No. 5,712,323) in view of Hendewerk (U.S. Patent No. 5,001,197). For the following reasons, Applicants respectfully traverse the Examiner's rejections.

Preliminarily, Applicants respectfully submit that the primary references Romani and Braga concern solely the cross-linking of polymers, in particular PP (see e.g. the title of Braga and the first paragraph of col. 1 of Romani). Hence, considering that the claimed invention as recited in independent claim 27 relates to the functionalization of a polyolefin with polar groups which provide the paraffinic original polymer with wettability and adhesion properties (absent in the original polymer) through a process based on the grafting of an unsaturated compound under

conditions allowing to control the degradation, it is respectfully submitted that the claimed invention would not have been obvious to a person of ordinary skill in the art based on the teachings concerning a different technical field, such as the ones relative to cross-linking. The existence of such a difference is indeed emphasized by the second paragraph of page 2 of the present description affirming that crosslinking reactions and grafting reactions are in competition with each other.

In any case, even if Applicants assume for the sake of argument that the teachings of Romani or Braga would have been an obvious starting point for the person skilled in the art of the present invention, the latter cannot be devised by combination thereof with the teachings of the secondary reference Hendewerk.

First of all, Applicants emphasize that the basic assumption of the Examiner that Hendewerk teaches that crosslinking has a meaningful effect of eliminating the molecular weight breakdown (see col. 13, lines 38-40) is not correct. The cited passage affirms indeed that the crosslinking effect "results in slightly lower MFR [melt flow rate] than when the crosslinking ability is not present", i.e. it is almost negligible, whereas at lines 3437 of col. 13 it is emphasized that the key factor for reducing the molecular weight degradation is using the solid phase instead of the melt phase. Hence, it is implausible to assert - as the Examiner does - that Hendewerk teaches that there is a meaningful correlation between crosslinking and reduction of the molecular weight degradation.

Furthermore, according to the Examiner (see page 5, first full paragraph), "it would have been obvious to one of ordinary skill in the art to modify a process for crosslinking polyolefin in the presence of furfuryl compound in Romani invention or Braga invention by employing a maleated polypropylene by teaching in Hendewerk". It is thus straightforward that the

combination of the teachings of the above-captioned references would have induced the skilled in the art to mix the already maleated polypropylene of Hendewerk with the furfuryl compound of Romani or Braga_

On the contrary, the gist of the claimed invention resides (see e.g. the wording of claim 27 and examples 10 and 11) in mixing a polyolefin, such as polypropylene, with a grafting system comprising a radical reaction initiator, a grafting compound such as butylic ester of 3(2-furanyl)-2-propenoic acid (BFA) and an unsaturated compound such as maleic anhydride (MAH). In particular, the comparison of examples 10 and 11, according to the present invention, with example 12, which is comparative, renders evident that BFA and MAH of the grafting system of the present invention explicate a synergistic effect, increasing not only the degree of grafting of the polyolefin, but also the final torque transmitted by the mixing compounding rotors. The torque increase is very important, because - as explained on page 13 of the present description - it is indicative of the lack of degradation of the final product obtained. In any case, such synergistic effect cannot plainly take place, if the polypropylene already maleated is mixed with a furfuryl compound which would be the single (beyond the initiator) component of the grafting system, so as it has been suggested by the Examiner herself. Hence, the latter has irrefutably proved the unobviousness, of the present invention, by combining the prior art references in a way which results in a process different from the one presently claimed, even apart from the fact that it is strongly objectionable that crosslinking may be equated to grafting, as well as that Hendewerk does not provide any clear teaching in respect of the existence of a meaningful correlation between crosslinking in general and reduction of the molecular weight degradation.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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